

California biosolids use and disposal trends, 2008

(All tonnages are expressed in dry metric tons, 100% dry weight basis)

During calendar year 2008, approximately **680,000** dry metric tons of biosolids were prepared ("prepared" refers to the tonnage following treatment such as digestion and dewatering). Nearly 95% of this was prepared using anaerobic digestion. While the population of California continues to grow and some treatment plants are installing additional solids removal processes, which increase biosolids tonnages, the tonnages at many plants have been reduced due to increases in digester efficiency, paving drying beds so as not to accumulate sand with the biosolids, and other enhanced treatment.

Approximately **750,000** dry metric tons of California biosolids were used or disposed in 2008. This includes tonnages generated during previous years that were removed from pond dredging, stockpiles, digester cleanings, etc. This figure also includes tonnages of biosolids compost made from biosolids and bulking agents such as greenwaste.

An additional 20,000 dmt prepared during 2008 were placed in short term storage, and approximately 25,000 dmt were settling in ponds or lagoons and will be dredged in the future. There is roughly 20,000 dmt currently stored at treatment plants from previous years that will be removed in the future.

About 85,500 dmt of California biosolids were sent to Arizona for land application, composting, or landfilling. Small amounts were also sent to Nevada for land application or landfilling, and to Cabazon lands for landfilling or use as alternative daily cover.

Several new processes were in the start up phase in 2008, and while these did not represent a significant change from 2007 in total tonnages going to the various use and disposal practices, they will for calendar 2009. These include several new heat dryers (with the product eventually targeted for use as fuel in cement kilns as well as for soil amendment), deep well injection, and use as construction material.

Southern California's largest windrow compost facility terminated operations in 2008 due to air district restrictions, while two new negative static aerated pile compost operations in Southern CA and the Central Valley began taking some of the biosolids it was formerly composting. Another large Central Valley windrow compost operation that has contracted with over 50 POTWs will need to convert to negative static aerated pile within a couple of years to meet Air District requirements. POTWs in the Bay Area continue to explore the possibility of a regional treatment facility.

2008 tonnages to use and disposal practices:

Class B land application: 178,000 dry metric tons:

- 15,000 dmt: on city-owned lands (in counties throughout CA)
- 35,000 dmt: on privately-owned lands within the same county
- 52,000 dmt: on private lands in another county (primarily Solano, Sacramento, Sonoma, and Merced Counties)
- 75,000 dmt: on private lands in Arizona
- 1,000 dmt: on private lands in Nevada

(Over 90% of this meets Class B by anaerobic digestion. A small amount meets Class B by air drying for three months, by aerobic digestion and fecal coliform testing, by lime treatment, or by ATAD and fecal coliform testing. Several facilities now use heat dryers but are still only certifying as Class B. A number of facilities that air dry biosolids for extended periods could probably certify as Class A using Alternative 4, but have not done the required pathogen monitoring as they have Class B options open.)

Class A treatment + land application: 341,000 dry metric tons:

225,000 dmt: composted and distributed in CA
6,500 dmt: composted in AZ for distribution in AZ
30,500 dmt: alkali treated and applied in CA
65,000 dmt: thermophilically digested and applied in CA
4,000 dmt: heat dried and distributed in CA
10,000 dmt: air dried and applied in CA

(Most biosolids that are heat treated, alkali treated, thermophilically digested, or air-dried are currently certified as Class A using Class A Alternative 3 or 4: i.e. testing for 3 categories of pathogens.)

Alternative daily cover or final cover at landfills in CA: 105,000 dmt

Landfilling: 74,000 dmt

65,000 dmt: landfilled in CA
4,000 dmt: landfilled in AZ
4,000 dmt: landfilled on Cabazon lands
1,000 dmt: landfilled in NV

Surface disposal (on city-owned lands): 20,000 dmt

Incineration (multiple hearth furnace): 21,000 dmt

Deep well injection: 2,000 dmt

Use in construction and for berms: 5,000 dmt

Use as seed sludge for industrial digesters: 2,000 dmt

Use in cement kilns (centrifuged Class B): 2,000 dmt

Tonnage in storage: 20,000 dmt (the amount stored from 2008 production. There is also approximately 20,000 dmt stored from previous years' productions.)

In long-term treatment: 25,000 dmt (solids from 2008 settling out in lagoons or ponds that will be dredged in the future. This is in addition to approximately 30,000 dmt from previous years' productions that will also be dredged in the future).

Biosolids quality:

14 out of California's 268 major biosolids facilities reported pollutant limits exceeding the 40 CFR 503 Table 3 limits: 5 exceeded the 1500 ppm Cu limit, 4 exceeded the 2800 ppm Zn limit, 3 exceeded the 41 ppm As limit, and 2 exceeded the 300 ppm Pb limit. One facility exceeded the 75 ppm Mo ceiling limit. Ten of these facilities also exceeded California's STLC test for hazardous waste. None of these facilities exceeded the federal TCLP hazardous waste test, which is used by Arizona, Nevada, and the Cabazon nation. Six of these 14 facilities are on military bases or prisons. (There may be additional facilities exceeding the limits that did not report pollutant levels as they were not using a practice regulated under 40 CFR 503 in 2008, and did not have conditions in their Waste Discharge Requirements for pollutant monitoring.)